

Operator Training

Ball-Float Vent Valve

D H E



PROMOTE



PROTECT



PROSPER
South Carolina Department of
Health and Environmental Control

Overfill Prevention Means

Preventing releases caused when too much fuel is put into a tank system



Overfill Prevention

The regulation requires that an overfill device be installed on all tanks that are filled by fuel transfers of more than 25 gallons at one time. (Typically, waste oil tanks are the only exception since usually less than 25 gallons of oil is put into the tank at any one time.)

Overfill Prevention

This device must stop flow,
restrict flow, or alert the operator
before the tank is completely full.



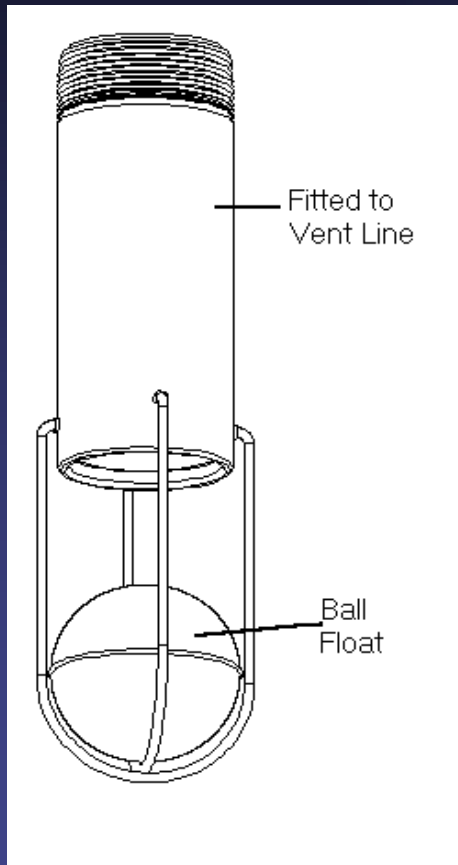
Overfill Prevention

There are three types:

- Ball-float vent valve
- Drop-tube shut-off valve
- Electronic Alarm



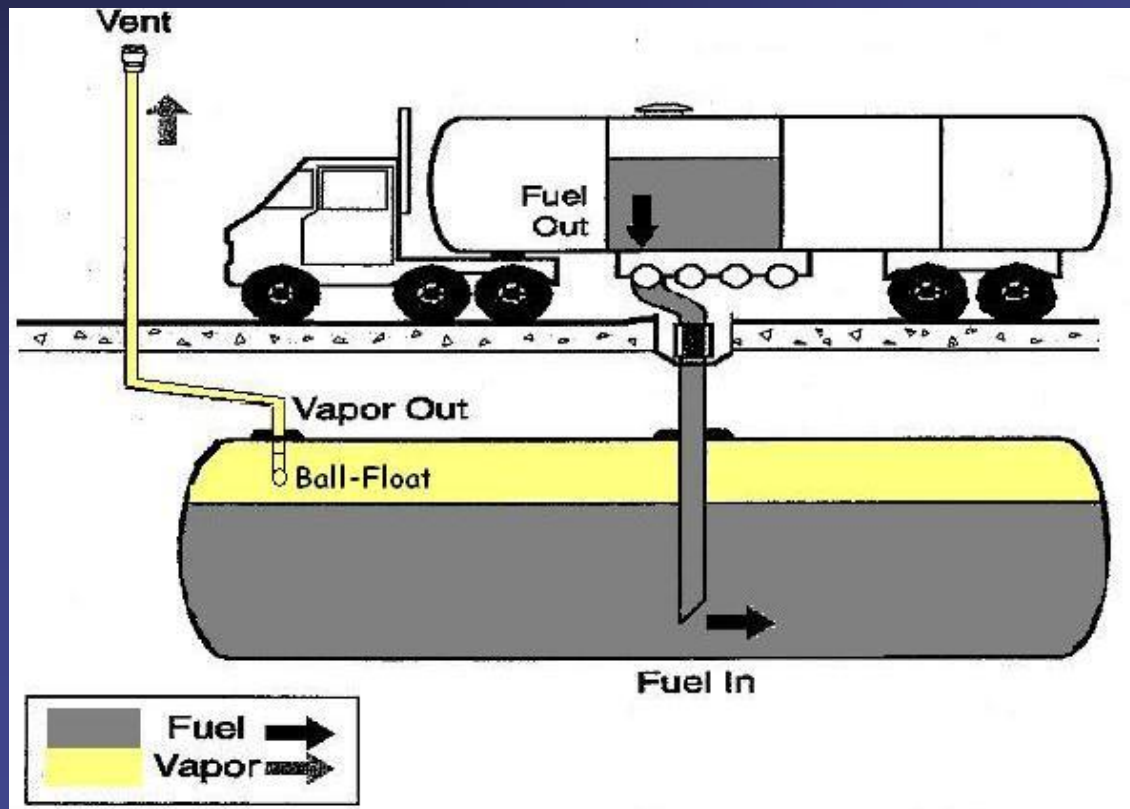
Ball-Float Vent Valves



The ball-float vent valve is installed at the point where the vent line comes off the tank (see photo above).

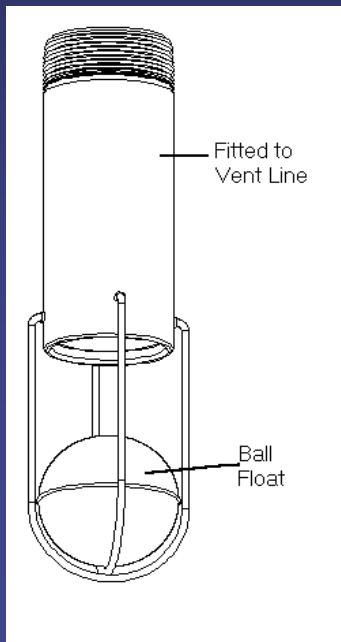
Ball-Float Vent Valves

When a delivery is made to a tank, vapors are created. These vapors take up the space above the fuel level and flow out of the vent lines. The ball float vent valve works by restricting the flow of vapors coming out of the tank. This increases the pressure in the tank and restricts the amount of fuel allowed in the tank.

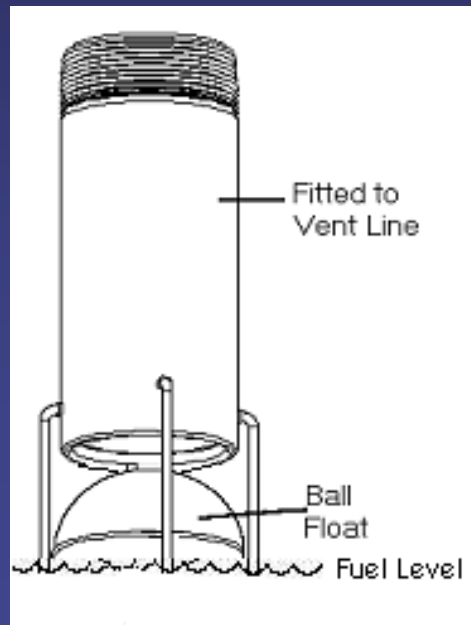


Ball-Float Vent Valves

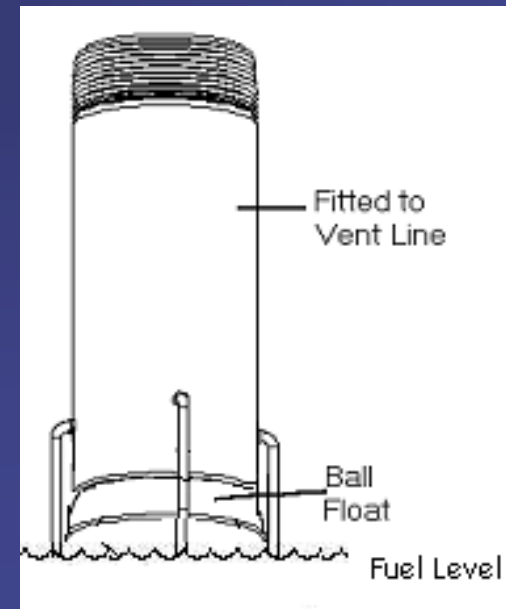
When the fuel level is below the ball-float valve cage, the ball rests at the bottom of the cage and the vent line is open (picture A). As the fuel level rises, the ball floats on the fuel and rises in the cage (picture B). As the delivery continues and 90% of the tanks' capacity is reached, the ball seals the vent line and restricts vapor flowing out of the vent line before the tank is full slowing the flow of fuel (picture C). When the fuel level reaches 95% the pressure in the tank has become sufficient enough to almost completely stop the flow of fuel into the tank.



A



B



C

Ball-Float Vent Valves

Should be set at a depth which will restrict flow during delivery at 90% of the tank's capacity or 30 minutes prior to the tank being full.

Ball-Float Vent Valves



Every opening along the tank top must be tight for the ball float vent valve to work properly. An open cap (ATG probe riser (shown), gauging riser, spare risers or stub outs) allows vapors to escape at ground level and prevents pressure from building in the tank.

Ball-Float Vent Valves

Since a ball-float vent valve cannot be seen from the top of the tank or verified during a compliance inspection, documentation should be kept on file stating that it is present.

[illegible]

Incompatibilities

Ball-float vent valves should not be used if the:

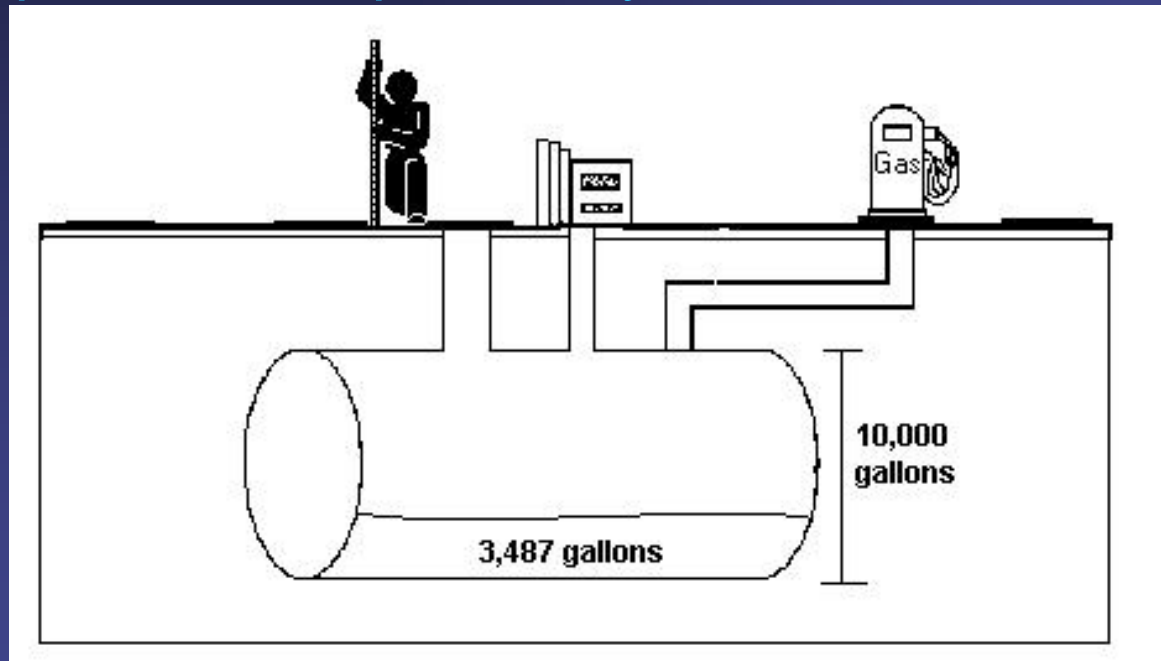
- UST system receives pressurized deliveries (short truck)
- UST system has suction piping
- UST system has single point Stage I vapor recovery (coaxial drop tube)

A Sure-fire Way to Prevent Overfills

280.30 (a) The owner and operator must ensure that the volume available in the tank is greater than the volume of product to be transferred to the tank before the transfer is made and that the transfer operation is monitored constantly to prevent overfilling and spilling.

A Sure-fire Way to Prevent Overfills

In other words, only order the quantity of fuel that will fit into 90% of the tank minus the current level of fuel and have someone watch the delivery from start to finish. It is the owner's/operator's responsibility if an overfill occurs.



10,000 gal. with overfill set at 90% = 9,000 gal.

9,000 gal. – 3,487 gal. = 5,513 gallons of fuel to be ordered